Shake 'N Plate

Manual Plating Tool

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OFFICE OF SCIENCE

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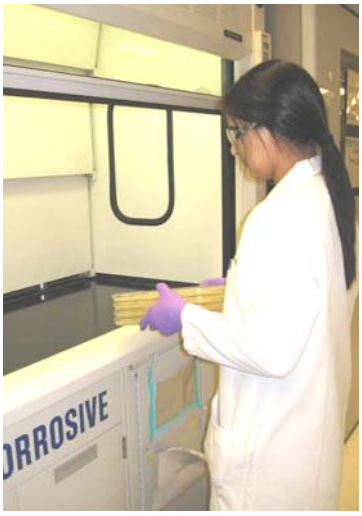

Before

After

Ergonomic Improvements

Administrative:

- Leg Room for seated option

Off the Shelf:

- Lighter plates
- Anti-fatigue Mat

Custom Engineering:

- Easy to use fixture (vs. hands) to hold the plates

Results:

- 25% ↑ throughput
- Reduced workers strain

Before Intervention

• 9"x9" bioassay plates • Weight: 1.4lbs/plate • 40 plates/process • 5 plates/cycle	• 1-2 minute shake time/cycle • Approx. 100 efforts/minute • Total processing time 40 minutes • Process 150 plates per day

	Before	After
Safety	• Grip Force 30-41% of maximum voluntary contraction • Strain Index = 40.5	• Grip Force 14-19% of maximum voluntary contraction • Strain Index = 2.3
Quality	•	• The quality of the sample did not change.
Delivery/Efficiency	• Process 4 bioassays per cycle manually.	• Process 5 bioassays per cycle with fixture. • Increased throughput by 25%.
Cost	•	• Reduction in process time by 25%; ROI (10 years) = 0.6 months
Morale/Teamwork	• Common musculoskeletal complaints due to load on shoulders, back, and hands.	• Participatory process → production staff design concept. • The new workstations ↑ flexibility for multiple operators. • Increased morale due to improvement of task and potential for future automation & cross training.

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